Office of Science
Office of Project Assessment Template

Preparing a Project Execution Plan

The DOE O 413.3B requires the development and approval of the PEP for projects with total project cost (TPC) of $50M or larger. The PEP is the governing document that establishes the means to execute, monitor, and control projects. The PEP serves as the main communication vehicle to ensure awareness and knowledge of project objectives and the general approach to project accomplishment. The purpose of this Guide is to: 1) Provide guidance for the Federal Project Director (FPD) and the IPT to produce a useful and flexible plan, and 2) Provide guidance on how to appropriately apply tailoring as defined in DOE O 413.3B.

The PEP is the primary agreement between Headquarters, the FPD, and the contractor.

Plan Development

The PEP is a living document and should be updated to incorporate any major changes.

Preliminary PEP (Critical Decision-1). The preliminary PEP is part of the Critical Decision-1 approval package. Depending upon the type of project and team experience, information could range from larger detail regarding current or near term activities (i.e., the design phase systems, processes, procedures and personnel) to less detail for future activities concerning procurement and construction activities to even less detail regarding testing, start-up and operational transition.

Critical Decision-2. The PEP should be updated as part of the Critical Decision-2 approval package. At this point, the PEP should contain a larger depth and breadth of information, detailed enough to bound the systems, processes, procedures and personnel and to support a well-defined scope, resource loaded schedule, definitive cost estimate, and defined key performance parameters for project execution. If any systems, processes, procedures and personnel requirements are yet to be fully defined (e.g., for testing, start-up, or operation transition) the PEP should clearly identify relevant assumptions/constraints and associated risks.

PEP Updates. The PEP is a living document that should be updated to capture changes to project systems, processes, procedures and personnel and revisions to the approved performance baseline or a post-construction contract award. The process for configuration control should be defined, including definitions of minor/major revisions and their associated approval authorities.

The project execution plan (PEP) should be a high level and concise document (**main text of the document, not including attachments and appendices should be approximately 25-35 pages**). The following pages describe the format and content of a PEP.

Project Execution Plan
for the
PROJECT NAME (ACRONYM)

Project # _____

at

_____ National Laboratory
Location

Office of [Program Office]
Office of Science
U.S. Department of Energy

Date Approved:

_____

Month/Year

Project Execution Plan for the
Project Name (Acronym) Project at the
_____ National Laboratory

Submitted by:

_____ Date: _____
[Name], Project Manager, [Laboratory]

_____ Date: _____
[Name], Project Director, [Laboratory]

_____ Date: _____
[Name], Additional Laboratory Staff As Needed, [Laboratory]

_____ Date: _____
[Name], Laboratory Director, [Laboratory]

_____ Date: _____
[Name], Federal Project Director, [Site Office], DOE

_____ Date: _____
[Name], Manager, [Site Office], DOE

_____ Date: _____
[Name], Program Manager
Office of [Program Office], Office of Science, DOE

Concurrence:

_____ Date: _____
[Name], Director
Office of Project Assessment, Office of Science, DOE

_____ Date: _____
[Name], Deputy Director (for projects with TPC of $400 or larger)
Office of Science, DOE

Approval:

_____ Date: _____
[Name], Acquisition Executive (see Approval Matrix)
Office of [Program Office]
Office of Science, DOE

Project Execution Plan for the
Project Name (Acronym) Project at the
_____ National Laboratory

Change Log

Revision History		
Rev.	**Date**	**Reason**

Project Execution Plan for the
Project Name (Acronym) Project at the
_____ National Laboratory

Table of Contents

Project Execution Plan for the
Project Name (Acronym) Project at the
_____ National Laboratory

Acronym List

List of Acronyms Contained Within Report

1. INTRODUCTION

This section should state the purpose and content of the PEP.

***Example**: This preliminary PEP (or PEP for CD-2) describes the management and project execution processes that are used to ensure that the XXXX Project scope is completed on time and within budget. The preliminary PEP defines the preliminary project scope; describes the organizational framework and overall management systems for the project; and identifies roles and responsibilities of the project participants. It also describes the formal change control process by which the project scope, cost, schedule, and PEP may be revised.*

1.1 Project Background

This section should provide a brief history/background of the project identifying important chronological items/issues and key drivers, including external drivers such as Congressional or Presidential mandates, and should state any changes to the project since the CD-0 approval.

***Example**: This project was initially named YYYY. This is one of the options covered by the mission need statement. The mission of the project was to …. However, because of changes in administration the goal of the project was refocused to alternative energy research…*

1.2 Justification of Mission Need

Provide a clear and concise paragraph (a few sentences) that summarizes the DOE, SC, and Program mission need and describe how the project fits within the mission including the benefits anticipated. The content of this section is a summary of sections 1 and 2 of the Mission Need Statement or section 1 of the Acquisition Strategy.

***Example 1**: Goals of DOE are to achieve the major scientific discoveries that will drive U.S. competitiveness; inspire America; and revolutionize approaches to the Nation's energy, national security, and environmental quality challenges. Additionally, there is a goal to provide a Foundation of Science.*

The U.S. DOE's Office of Basic Energy Sciences (BES) mission is to "support fundamental research to understand, predict, and ultimately control matter and energy at the electronic, atomic, and molecular levels in order to provide the foundations for new energy technologies and to support DOE missions in energy, environment, and national security"

To maintain this mission, there is a continual need for a better understanding of materials at an unprecedented resolution and brightness. Currently, the existing SC facilities are aged and more advanced capabilities in xx and xx are needed to meet the mission need.

Without a fundamental understanding of the components of…and processes involved in …, scientists will be restricted in their ability to understand the factors contributing designing more efficient …for conversion…and for scientists to continue to make new discoveries in…that could lead to advances in…

***Example 2**: As part of DOE's strategic mission to achieve major scientific discoveries, and in accordance with the xxx Policy Act of xxx, the HEP Program supports fundamental research in xxx. In addition, HEP Program constructs, … To maintain this mission, HEP needs to better understand fundament characteristics of xx particles… Currently, there are no existing facilities in the U.S. that have the capability to better understand…*

To maintain this mission, there is a continual need for a better understanding of materials at an unprecedented resolution and brightness. Currently, the existing SC facilities are aged and more advanced capabilities in xx and xx are needed to meet the mission need.

Without a fundamental understanding of the components of … and processes involved in …, scientists will be restricted in their ability to understand the factors contributing designing more efficient…for conversion…and for scientists to continue to make new discoveries in…that could lead to advances in…

2. PROJECT BASELINE

This section documents the project Performance Baseline (PB) that consists of the scope, cost (TPC), schedule (CD-4 date), funding profile, and other information related to the PB.

Lower tier documents will capture all the details and plans for resource cost/schedule/scope and project life cycle from initiation to start of operations/closeout.

2.1 Scope Baseline

This section describes the project scope, technical performance parameters, and clearly defines when the project is considered complete or has achieved CD-4. Specifically, l**ist approximately six threshold or minimum** key performance parameters (KPPs)**.** Use brief and concise language to explain the work to be completed with minimal details. KPPs may include the following:

- What items or services will be produced?
- What are the estimated quantities of products or services?
- What is the proposed location of the new asset?
- For a facility, what is the required square footage?
- What excess buildings or facilities will be eliminated as a result of this new acquisition?
- What specific laws/regulations/agreements or other factors will significantly influence the project?
- Is this a hazard category 1, 2 or 3 nuclear facility or other hazardous facility?
- Is the facility required to comply with the DOE requirement for Leadership in Energy and Environmental Design (LEED) Green Building Rating System certification?
- Define when the project is considered complete or has achieved CD-4.

***Example 1**: Technical Project—The project, to be located at xxx lab, is to design, construct, test, and commission an xxx facility. The key performance parameters (KPP) of the project are:*

Description of Scope	*Threshold KPP*	*Objective KPP*
Facility Size	*Xx,xxx SF*	*Xx ,xxx SF*
Brightness		
Spatial Resolution		
Energy Resolution		
Experimental Facilities	*3*	*5*

Note: The threshold KPPs are the minimum parameters against which the project's performance is measured when complete. At CD-2, the documented threshold KPPs comprises the official Performance Baseline. Objective KPPs are those additional parameters that will be added to the project if contingency is available.

The project is declared complete (CD-4 criteria) when the following is achieved:

- *Facility has completed the XX building and ready for occupancy*
- *Ion source is accelerated up to at a minimum energy of xxx MeV peak for xx seconds*
- *Calculations have shown that xxx can be achieved.*
- *Three experimental facilities are installed without beams.*

Example 2*—Conventional Construction Project: The project, to be located at XXXX is to design and construct general office space and a laboratory building. The project will also demolish space to meet the one-for-one requirements. The threshold key performance parameters of the project are:*

Description of Scope	*Threshold KPP*	*Objective KPP*
Facility Size	*Xx,xxx SF*	*Xx ,xxx SF*
Demolition	*Xx,xxx SF*	*Xx ,xxx SF*
LEED Certification	*Gold*	*Platinum*

Note: The threshold KPPs are the minimum parameters against which the project's performance is measured when complete. At CD-2, the documented threshold KPPs comprise the official Performance Baseline. Objective KPPs are those additional parameters that will be added to the project if contingency is available.

The project is declared complete (CD-4 criteria) when the XX building is complete, has been commissioned, and is ready for beneficial occupancy.

2.2 Cost Baseline

Prior to CD-2 approval, the TPC should be a cost range. For CD-2 approval, the cost baseline is a point estimate that includes all project costs, and should be defined at the Level 2 or 3 Work Breakdown Structure.

- **Total Estimated Cost (TEC),** such as costs associated with the acquisition of land and land rights; engineering, design, testing, and inspection; direct and indirect construction/ fabrication and the initial equipment necessary to place the plant or installation in operation. TEC may be funded as an operating or capital expense.
- **Other Project Costs (OPC)** that are not identified within the total estimated cost; generally, costs incurred during the initiation and definition phases for planning, conceptual design,

research and development, and during the execution phase for startup and operation. OPCs are always operating funds.

- **Contingency/Management Reserve (MR)** is the portion of the budget that is set aside for risks within the project scope but outside the performance measurement baseline. Contingency may be included both within the total estimated and other project cost.
- **Total Project Cost (TPC),** the sum of total estimated cost and other project cost.

***Example**: The Total Project Cost or the cost baseline is $578.8M, which currently includes $107.5M of contingency. The project has spent $12.1 M to date. Table W below shows breakdown of the project cost.*

Table W—Project Cost Summary

WBS #	***WBS Title***	***Total $K***
1.01	*Project Management*	*26,500*
1.03	*Accelerator Systems*	*170,800*
1.04	*Experimental Facilities*	*48,200*
1.05	*Conventional Facilities*	*144,000*
	Direct TEC	*389,500*
	TEC Contingency (24 % ETC)	*95,300*
	TEC	***484,800***
1.02	*R&D*	*39,600*
1.06	*Pre-Ops*	*42,200*
	Direct OPC	*81,800*
	OPC Contingency(17 % ETC)	*12,200*
	OPC	***94,000***
	TPC	***578,800***
Note: This is the cost data as of XX date. As the contingency is consumed, the PMB will change. The change to PMB is not defined as a major change requiring a PEP update.		

*For CD-1, include a note that *"the TPC cost range is $xxxM to $xxxM and the table represents mid-range of the TPC."*

2.3 Schedule Baseline

The schedule baseline is the CD-4 completion date. This section needs to include the CD dates and the approximate schedule contingency amount. As applicable, this section should also include but is not limited to the following:

- Key activities/milestones, etc.
- Major reviews conducted by the field and Headquarters.

- Major procurements and/or when major procurement decisions were made including foreign owned determinations and approvals.
- When major Headquarters policy decisions are needed and from whom.
- Major activities (contractor and/or Federal) associated with project completion.
- Government-furnished services/items (particularly if from Headquarters/site).
- Key decisions required by other agencies.

***Example**: Project CD-4 date is 6/30/2015, which includes approximately 12 months of schedule contingency (or ~19% of estimate to complete). The following Tables list the key schedule milestones.*

Table XX

Level X Milestone	***Schedule***
CD-0, Approve Mission Need	*8/22/06 (actual)*
CD-1, Approve Alternative Selection and Cost Range	*12/14/07 (actual)*
CD-3a, Approve Long Lead Procurement	*1/18/09 (actual)*
CD-2/3, Approve Performance Baseline and Start of Construction	*2/2010*
CD-4, Approve Project Completion (defined as delivery of components)	*3rd Quarter, FY2015*

Table XX+1

Level X+1 Milestone	***Schedule***
WBS 1.3 Accelerator Systems	
Award of RF Component Contract	*5/2010*
Award of Magnet Contract	*10/2010*
Award of Vacuum System Contract	*11/2010*
WBS 1.4 Experimental Facilities	
Beamline Final Design Complete	*3/2011*
Experimental Facility Installation Start	*5/2013*
Experimental Facility Commissioning Complete	*9/2014*
WBS 1.5 Conventional Facilities	
Start Sitework	*2/2009*
Conventional Facility RFP Announcement	*3/2009*
Conventional Facility BOD	*9/2014*

Table XX +2

Level X+2 Milestone	***Schedule***
AE Award	*1/1/2007*
Conceptual Design Review	*7/1/2007*
Prepare for CD-1 ESAAB	*11/1/2007*
Prepare for CD-3a ESAAB	*4/30/2008*
Preliminary Design Review	*11/1/2008*
Final Design Review	*4/1/2009*
Issue Final NEPA Determination	*5/30/2009*
Select CM Contract	*5/1/2009*
CD-2/3 IPR	*6/1/2009*
Prepare for CD-2/3 ESAAB	*9/1/2009*
Initiate Steel Purchase	*4/1/2010*
Award of Conventional Facility Contract	*8/1/2010*
Complete 30% of Project	*1/31/2011*
Complete 60% of Project	*1/31/2012*
Complete Equipment Installation	*9/15/2012*
Clean Room BOD	*6/30/2013*
Complete Testing and Commissioning Plan	*12/15/2013*
Complete Draft Project Closeout Report	*10/1/2014*
CD-4 IPR	*11/1/2014*
Prepare for CD-4 ESAAB	*3/31/2015*

2.4 Work Breakdown Structure (WBS)

Include a WBS up to Level 2 or level 3 (depending on the size and complexity of project) and define the WBS Level 2 elements.

***Example**: The project work is organized as shown in the following.*

WBS#	WBS NAME	Total $K
1	***XXXX Project***	
1.1	***Project Management***	***$26,500***
1.1.1	*Project Management*	*$3,578*
1.1.2	*Environment, Safety & Health*	*$2,915*
1.1.3	*Project Support*	*$15,900*
1.1.4	*Quality Assurance*	*$2,094*
1.1.5	*Configuration Mgmt. & Document Control*	*$2,013*
1.2	***R&D***	***$39,600***
1.2.1	*Requirements Development*	*$2,376*
1.2.2	*Conceptual Design*	*$14,256*
1.2.3	*Technical Systems R&D*	*$22,968*
1.3	***Accelerator Systems***	***$170,800***
1.3.1	*Accelerator Physics*	*$7,686*
1.3.2	*Injection System*	*$28,182*
1.3.3	*Storage Ring*	*$96,502*
1.3.4	*Controls Systems*	*$14,518*
1.3.5	*Accelerator Safety Systems*	*$17,080*
1.3.6	*Insertion Devices*	*$6,832*
1.4	***Experimental Facilities***	***$48,200***
1.4.1	*Local Controls & Data Acquisition Systems*	*$3,374*
1.4.2	*Diagnostics*	*$2,314*
1.4.3	*Optics*	*$2,362*
1.4.4	*User Instruments*	*$37,500*
1.4.5	*Optics Labs*	*$2,651*
1.5	***Conventional Facilities***	***$144,000***
1.5.1	*Site Characterization*	*$4,320*
1.5.2	*Conventional Facilities Engineering and Design*	*$12,960*
1.5.3	*Conventional Facilities Construction*	*$120,240*
1.5.4	*Integrated Controls & Communications*	*$3,600*
1.5.5	*Standard Equipment*	*$2,880*
1.6	***Pre-Ops***	***$42,200***
1.6.1	*Accelerator Systems - Pre Ops*	*$20,678*
1.6.2	*Experimental Facilities - Pre Ops*	*$9,706*
1.6.3	*Spares*	*$5,908*
1.6.4	*Conventional Facilities Commissioning*	*$5,908*
	TEC Contingency	***$95,300***
	OPC Contingency	***$12,200***
	Total Project Cost	***$578,800***

WBS at level 2 is defined as following.

WBS #	***WBS Title***	***WBS Description***
1.1	*Project Management*	*Labor, materials, travel, and fixed costs associated with operations of the xxx Project Office, including the offices of the Project Director and staff; the project support functions; environment, safety, and health; quality assurance; configuration management; and document control.*
1.2	*R&D and Engineering and Design*	*Perform all R&D, engineering, design, and specification activities associated with the project.*
1.3	*Accelerator Systems*	*Procurement, construction, installation and testing of components necessary for the accelerator.*
1.4	*Experimental Facilities*	*Procurement, installation, and commissioning, without beam, of the three insertion devices/instruments included in the project scope.*
1.5	*Conventional Facilities*	*Construction of conventional facilities including office buildings, laboratory space, experimental facility space, tunnels for the systems, and parking lots.*
1.6	*Pre-Ops*	*Costs associated with all support needed for the transition to operations of subsystems including commissioning of the conventional facility, testing and start-up of technical systems, spares, and any consumables used during Pre-ops.*

2.5 Funding Profile

The purpose of this section is to ensure that the project clearly illustrates its requirements for time phased funding over the course of the project. This is considered essential, as any given project will most likely receive its funding over multiple years in accordance with the Department's annual budget cycle with Congress.

The funding profile should clearly designate by fiscal year how much funding is planned or requested for the project. Cumulative time phased budget requirements should equal the total project cost.

Also, include in this section funding type such as Line Item, Major Item of Equipment, or Operating Expense.

***Example**: This is a line item project with the baseline funding profile shown below.*

Fiscal Year	***FY 06***	***FY 07***	***FY 08***	***FY 09***	***FY 10***	***FY 11***	***FY 12***	***FY 13***	***FY 14***	***FY 15***	***Total ($M)***
OPC*	***$5***	***$17***	***$16***	***$13***	***$4***	***$2***	***$6***	***$14***	***$14***	***$4***	***$94***
R&D and Design	*$5*	*$17*	*$16*	*$13*	*$4*	*$1*					*$55*
Pre-Ops						*$1*	*$6*	*$14*	*$14*	*$4*	*$39*
TEC		***$2***	***$18***	***$107***	***$98***	***$122***	***$91***	***$33***	***$15***	***$0***	***$485***
PED		*$2*	*$18*	*$21*							*$40*
Construction				*$86*	*$98*	*$122*	*$91*	*$33*	*$15*		*$444*
Total Project Cost* ($M)***	*$5*	*$19*	*$33*	*$120*	*$102*	*$123*	*$97*	*$47*	*$29*	*$4*	*$579*

* *Other Project Costs (OPC) includes Conceptual Design, R&D and Pre-Operations.*

** *Total Estimated Cost (TEC) Construction includes Preliminary and Final Designs, construction, project management, and other costs not captured in OPC.*

*** *Total Project Cost (TPC) includes TEC PED, TEC Construction, and OPC.*

If the project is prior to CD-1, include the following with the funding table.

"This funding profile represents the mid range of the current CD-1 cost estimate. The project has not been baselined and the presented funding profile is for planning purposes but is not definitive."

3. LIFE CYCLE COST

Life-cycle costs should clearly delineate a total for the estimate as well as breakouts that correspond to each major phase of the project (i.e., design, construction, operations, etc.). In addition, this discussion should also include the estimated duration (i.e., years). It should also be clear what reference point is being used to describe the costs as (i.e., base dollars, as spent dollars, etc). Key applicable assumptions should be stated. Highlighting life-cycle analysis factors associated with sustainability features is also suggested.

***Example**: The project TPC is estimated to be $579M in as spent dollars from August 2006 to June 2015. The operations and maintenance cost is estimated to be ~$190M in current dollars with a 20-year operational lifetime. The decommissioning, dismantling, and decontamination costs are expected to be offset by the component salvage value.*

4. ACQUISITION APPROACH

Briefly explain how this project will be acquired. Provide reference to Acquisition Strategy or Acquisition Plan as necessary.

***Example**: DOE will acquire the project through the M&O contractor xxxx. Xxxx will have the ultimate responsibility to successfully execute the project.*

5. TAILORING STRATEGY

This section should document how the requirements of DOE O 413.3B will be met through a tailored application of project management and project controls.

Tailoring is necessary for efficient delivery of projects and should be applied to all projects considering size, complexity, cost, and risks. Tailoring does not imply the omission of essential elements, and requirements must be addressed to the extent necessary and practical.

Tailoring may involve consolidation or phasing of CDs, substituting equivalent documents, using a graded approach to document development and content, concurrency of processes, or creating a portfolio of projects to facilitate a single CD or Acquisition Strategy for the entire group of

projects. Tailoring may also include adjusting the scope of Independent Project Reviews and External Independent Reviews, delegation of acquisition authority, and other applications.

> ***Example****: Because this is a non-complex, repetitive facility construction project, tailoring principles will be applied. The application of the following tailoring approaches will accelerate the project completion and save significant cost. This project plans to use the following tailoring principles:*
>
> - *Design-build approach to construct the facilities*
> - *Request construction funding prior to CD-2 approval*
> - *Delegate the AE authority from the Deputy Director, Office of Science to the Associate Director of xxx Program.*
> - *The project also will not develop a project specific SVAR, but use the site-wide SVAR,*
> - *Long-lead procurement for sitework is planned prior to CD-2*
> - *The project will have simultaneous CD2/3 approvals*

6. BASELINE CHANGE CONTROL

The baseline change control framework, which includes applicable change management processes, threshold requirements, and change control board charter and the procedures to be followed, should be established or referenced. A summary table of baseline change control thresholds; and approval authority for scope, schedule, cost and funding should be included in the PEP.

Change Control Table for Line Item Projects with TPC of $400M or Greater

	Director, Office of Science	Associate Director (AE)	Federal Project Director*	Contractor Project Manager
Scope	Any change in scope and/or performance that affects the ability to satisfy the mission need or is not in conformance with the current approved PEP Section 2.1 and PDS.	Any addition to scope as described in PEP section 2.1 or Major changes in technology or approach to Level 2 WBS components as stated in Section 2.4	Major changes in technology or approach to Level 3 WBS components as shown in Section 2.4.	Major changes to WBS below Level 3
Cost	Any increase in TPC, TEC, or OPC of the project as stated in Table W.	One time contingency* usage of $xM or larger or The larger cumulative change of—greaterthan 50% or $xxM of Level 2 WBS**.	The larger cumulative change of—greaterthan 50% or $xM of Level 3 WBS** as shown in Table W+1.	The larger cumulative change of—greaterthan 50% or $xM to WBS Lower than level 3**.
Schedule	Any delay in CD-4, project completion date as stated in Table XX.	Any changes to Level X milestone (with the exception of CD-4) as stated in Table XX.	Any changes to Level XX+1 milestone as shown in Table XX+1.	Any changes to milestone below level XX+1.
Funding		Any changes to funding profile as shown in Section 2.5 that negatively impacts the Performance Baseline.		

* Any contingency usage will require the approval by the FPD or Federal personnel.

** After the cumulative threshold has been reached and the next higher change authority has been notified and has approved the changes, the cumulative cost thresholds will reset.

Change Control Table for Major Item of Equipment Projects with TPC of $400M or Greater

	Director, Office of Science	Associate Director	Federal Project Director*	Contractor Project Manager
Scope	Any change in scope and/or performance that affects the ability to satisfy the mission need or is not in conformance with the current approved PEP Section 2.1 and PDS.	Any addition to scope as described in PEP section 2.1 or Major changes in technology or approach to Level 2 WBS components as stated in Section 2.4	Major changes in technology or approach to Level 3 WBS components as shown in Section 2.4.	Major changes to WBS below Level 3
Cost	*Any increase in TPC of the project as stated in Section 2.2.*	One time contingency* usage of $xM or larger or The larger cumulative change of—greater than 50% or $xxM of Level 2 WBS**.	The larger cumulative change of—greater than 50% or $xM of Level 3 WBS** as shown in Table W+1.	The larger cumulative change of—greater than 50% or $xM to WBS Lower than level 3**.
Schedule	Any delay in CD-4, project completion date as stated in Table XX.	Any changes to Level X milestone (with the exception of CD-4) as stated in Table XX.	Any changes to Level XX+1 milestone as shown in Table XX+1.	Any changes to milestone below level XX+1.
Funding		Any changes to funding profile as shown in Section 2.5 that negatively impacts the Performance Baseline.		

* Any contingency usage will require the approval by the FPD or Federal personnel.

** After the cumulative threshold has been reached and the next higher change authority has been notified and has approved the changes, the cumulative cost thresholds will reset.

Change Control Table for Line Item Projects with TPC of Less Than $400M

	Deputy Director for Science	Acquisition Executive (SC-2 or AD)	Federal Project Director*	Contractor Project Manager
Scope	Any change in scope and/or performance that affects the ability to satisfy the mission need or is not in conformance with the current approved PEP Section 2.1 and PDS.	Any addition to scope as described in PEP section 2.1 or Major changes in technology or approach to Level 2 WBS components as shown in Section 2.4.	Major changes in technology or approach to Level 3 WBS components as shown in Table W+1	Major changes to WBS below Level 3
Cost	Any increase in TPC, TEC, or OPC of the project as stated in Table W.	One time contingency* usage of $xM or larger or The larger cumulative change of—greater than 50% or $xxM of Level 2 WBS** as shown in Table W.	The larger cumulative change of—greater than 50% or $xM of Level 3 WBS** as shown in Table W+1.	The larger cumulative change of—greater than 50% or $xM to WBS Lower than level 3**.
Schedule	Any delay in CD-4, project completion date as stated in Table XX.	Any changes to Level X milestone as shown in Table XX (with the exception of CD-4)	Any changes to Level X+1 milestone shown in Table XX+1	Any changes to milestone below Level XX+1
Funding		Any changes to funding profile as shown in Section 2.5 that negatively impacts the Performance Baseline.		

* Any contingency usage will require the approval by the FPD or Federal personnel.

** After the cumulative threshold has been reached and the next higher change authority has been notified and has approved the changes, the cumulative cost thresholds will reset.

Change Control Table for Major Item of Equipment Projects with TPC Less Than $400M

	Deputy Director for Science	Acquisition Executive (SC-2 or AD)	Federal Project Director*	Contractor Project Manager
Scope	Any change in scope and/or performance that affects the ability to satisfy the mission need or is not in conformance with the current approved PEP Section 2.1 and PDS.	Any addition to scope as described in PEP section 2.1 or Major changes in technology or approach to Level 2 WBS components as shown in Section 2.4.	Major changes in technology or approach to Level 3 WBS components	Major changes to WBS below Level 3
Cost	*Any increase in TPC of the project as stated in Section 2.2.*	One time contingency* usage of $xM or larger or The larger cumulative change of—greater than 50% or $xxM of Level 2 WBS** as shown in Table W.	The larger cumulative change of—greater than 50% or $xM of Level 3 WBS** as shown in Table W+1.	The larger cumulative change of—greater than 50% or $xM to WBS Lower than level 3**.
Schedule	Any delay in CD-4, project completion date as stated in Table XX.	Any changes to Level X milestone as shown in Table XX (with the exception of CD-4)	Any changes to Level X+1 milestone shown in Table XX+1	Any changes to milestone below Level XX+1
Funding		Any changes to funding profile as shown in Section 2.5 that negatively impacts the Performance Baseline.		

* Any contingency usage will require the approval by the FPD or Federal personnel.

** After the cumulative threshold has been reached and the next higher change authority has been notified and has approved the changes, the cumulative cost thresholds will reset.

Example: Line-item project with TPC of $400M or more*: The project baseline change control process is described in the site EVMS description, the IPT Charter, and/or xxx document. The following summarizes the project baseline change control thresholds and authorities.*

	Director, Office of Science	***Associate Director***	***Federal Project Director****	***Contractor Project Manager***
Scope	*Any change in scope and/or performance that affect the ability to satisfy the mission need or are not in conformance with the current approved PEP Section 2.1 and PDS.*	*Any addition to scope as described in PEP section 2.1 or* *Major changes in technology or approach to Level 2 WBS components as stated in Section 2.4*	*Major changes in technology or approach to Level 3 WBS components as shown in Section 2.4.*	*Major changes to WBS below Level 3*
Cost	*Any increase in TPC, TEC, or OPC of the project as stated in Table W.*	*One time contingency* usage of $xM or larger or* *The larger cumulative change of—greater than 50% or $10M of Level 2 WBS**.*	*The larger cumulative change of—greater than 50% or $1M of Level 3 WBS** as shown in Table W+1.*	*The larger cumulative change of—greater than 50% or $1M to WBS Lower than level 3**.*
Schedule	*Any delay in CD-4, project completion date as stated in Table XX.*	*Any changes to Level X milestone (with the exception of CD-4) as stated in Table XX.*	*Any changes to Level XX+1 milestone as shown in Table XX+1.*	*Any changes to milestone below level XX+1.*
Funding		*Any changes to funding profile as shown in Section 2.5 that negatively impacts the Performance Baseline.*		

** Any contingency usage will require the approval by the FPD or Federal personnel.*

*** After the cumulative threshold has been reached and the next higher change authority has been notified and has approved the changes, the cumulative cost thresholds will reset.*

7. MANAGEMENT STRUCTURE and INTEGRATED PROJECT TEAM

The project organization should be described, including an organization chart that identifies the various participants, their interfaces and reporting relationships, and their roles and responsibilities. Briefly discuss the Integrated Project Team and the IPT charter should be

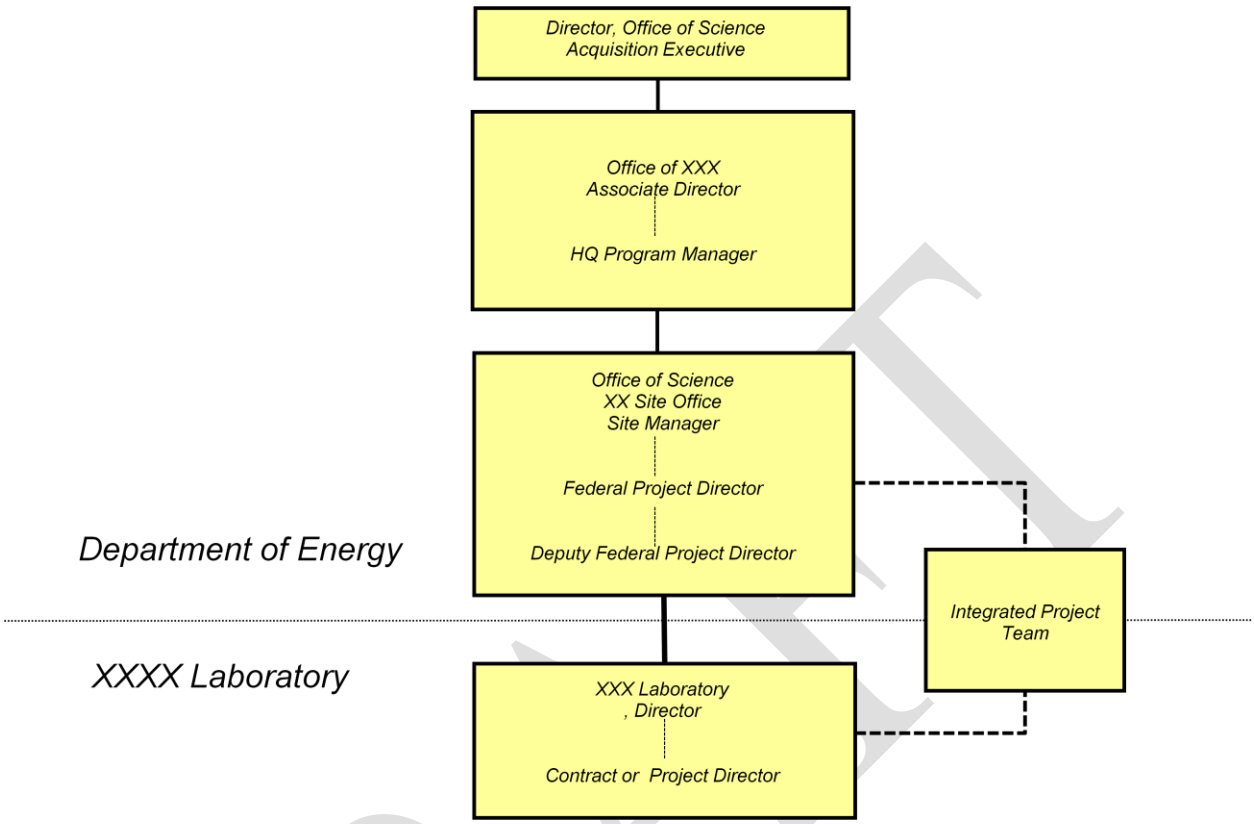
referenced or include in the PEP. If a critical capability gap is identified in the IPT, the FPD should take action to close the gap with appropriate government or contract support before progressing further with the project.

When developing the project organization, refer to the DOE O 414.1C, *Quality Assurance*, dated 6/17/05, and/or Quality Assurance Rule [Title 10 of the Code of Federal Regulations (CFR) Part 830, Subpart A, Quality Assurance] requirements that are applicable for project organization. Depending on the complexity of the project, a separate human resources and staffing plan may be appropriate.

The following is an example of individuals or organizations that may be included in this section.

- Acquisition Executive
- Associate Director
- Headquarters Program Manager
- Site Manager
- Federal Project Director
- Deputy Federal Project Director
- XXXX Laboratory Contractor
- Contractor Project Director
- Integrated Project Team

***Example**: The project organization is shown below.*



Acquisition Executive

The Director of Science Programs within the Office of Science (SC-1) serves as the Acquisition Executive (AE) for this project. As such, SC-1 has full responsibility for ensuring adequate project planning and execution, and for establishing broad policies and requirements for achieving project goals. Specific responsibilities for this project include:

- *Approves Critical Decisions*
- *Ensures the FPD appointed to a project is qualified and has appropriate communication and leadership skills prior to designation.*
- *Approves the Acquisition and PEP,*
- *Approves IPT Charter (if not part of the PEP)*
- *Approves issuance of EIS determination*
- *Conducts monthly or quarterly project reporting/meeting and*
- *Delegates approval authority for baseline changes.*

Associate Director

- *Initiates definition of mission need and objectives of the project*
- *Approves Level X baseline changes*
- *Reviews and provides recommendation to Level X-1 baseline changes,*

- *Initiates formal periodic reviews of the project*
- *Provide HQ technical guidance and resources to the FPD and Program Manager*
- *Provides funding for the construction and operation of the facility.*

Note: For smaller projects, the AE and AD may be the same individual. In such a circumstance, these roles will be combined and consolidated)

HQ Program Manager

- *Serves as the FPD until the FPD is appointed*
- *Functions as DOE-Headquarters (DOE-HQ) point-of-contact for Project matters*
- *Serves as the representative in communicating the interests of the SC program*
- *Coordinates with FPD, IPT, other SC Staff offices, and DOE-HQ program offices, as needed, to execute the project*
- *Assists with budget formulation*
- *Reviews and provides recommendations to senior management on Levels X-1 and X baseline changes*
- *Serves on the IPT*
- *Reviews documents (MNS, AS, PEPs, IPT Charter, etc.) and recommend approval*
- *Reviews project progress reports and deliverables*
- *Supports formal periodic reviews of the Project including DOE-OPA Reviews (Lehman Reviews) and tracks issues to resolution*

Site Manager

- *Provides required Federal personnel resources at the site as necessary*
- *Approves xx documents and xx permits*

Federal Project Director

- *Serves as the single point of contact between Federal and contractor staff for all matters relating to a project and its performance.*
- *Prepares and maintain the IPT Charter and operating guidance with IPT support and ensure IPT is properly staffed. Define and oversee the roles and responsibilities of each IPT member.*
- *Leads the IPT and provide broad program guidance. Delegates appropriate decision-making authority to the IPT members.*
- *Appointed as the Contracting Officer's Technical Representative, as determined by the Contracting Officer.*
- *Ensures development and implementation of key project documentation*
- *Defines project cost, schedule, performance, and scope baselines.*
- *Ensures design, construction, environmental, safety, security, health and quality efforts performed comply with the contract, public law, regulations and Executive Orders.*

- *Ensures timely, reliable, and accurate integration of contractor performance data into the project's scheduling, accounting, and performance measurement systems, to include PARS II.*
- *Evaluates and verify reported progress; make projections of progress and identify trends.*
- *Approves (in coordination with the Contracting Officer) changes in compliance with the approved change control process documented or referenced in the PEP.*

Deputy Federal Project Director

- *Assists the FPD and act as the FPD when FPD is unavailable*

XXXX Laboratory/Contractor

- *Ultimately responsible and accountable to DOE for executing the Project within scope, cost and schedule in a safe and responsible manner.*
- *Provides access to laboratory/contractor resources, systems, and capabilities required to execute the Project.*
- *Maintains project progress and reports to DOE PARS II.*

Contractor Project Director

- *Manages the execution of the project at XXXX to ensure that the project is completed within approved cost, schedule and technical scope,*
- *Ensures that effective project management systems, cost controls and milestone schedules are developed, documented and implemented to assess project performance,*
- *Ensures that project activities are conducted in a safe and environmentally sound manner.*
- *Ensures ES&H responsibilities and requirements are integrated into the project.*
- *Oversees R&D program, design, fabrication, installation, construction and commissioning.*
- *Represents the project in interactions with the DOE. Participates in management meetings with DOE and communicates project status and issues.*
- *Requests and coordinates internal and external peer reviews of project.*
- *Chairs the Change Control Board,*
- *Chairs the risk management committee,*
- *Approves Level XX change control proposals. Prepares and provides recommendations to the Federal Project Director for Level 0, 1, and 2 change control proposals.*
- *Identifies and manages project risks.*
- *Manages the interface and coordination of requirements with other projects*
- *Primary point of contact with the Federal Project Director*

Integrated Project Team

The integrated project team consists of Federal and Contractor professionals representing Architect/Engineers, budget/finance, contracting/procurement, ES&H, legal, Project

Management/Controls, QA, security, stakeholders/end users, technical managers, and others as applicable . The team size and membership will change as a project progresses from CD-0 to CD-4. It is the responsibility of the FPD to ensure the necessary skills are always represented to meet project needs. Team membership may be full or part time, depending upon the scope and complexity of a project and the activities being performed.

As applicable, the responsibilities of the IPT members may include:

- *Support the Federal Project Director.*
- *Work with the Contracting Officer to develop a project Acquisition Strategy and Acquisition Plan, as applicable.*
- *Ensure project interfaces are identified and defined*
- *Assist with completion of the project environmental, safety, health, security, risk and quality assurance requirements.*
- *Identify and define appropriate and adequate project technical scope, schedule and cost parameters.*
- *Perform periodic reviews and assessments of project performance and status against established performance parameters, baselines, milestones and deliverables.*
- *Plan and participate in project reviews, audits, and appraisals as necessary.*
- *Review and comment on project documents and deliverables (e.g., drawings, specifications, procurement, and construction packages).*
- *Review change requests (as appropriate) and support Change Control Boards as requested.*
- *Participate, as required, in Operational Readiness Reviews or Readiness Assessments.*
- *Ensure that safety is fully integrated into design and construction for Hazard Category 1, 2, and 3 nuclear facilities.*

More information on the organization of the contractor personnel and their specific roles and responsibilities is provided in the IPT Charter.

8. PROJECT MANAGEMENT/OVERSIGHT

8.1 Risk Management

This section should describe the policies and practices for managing risk and a summary of the results of the risk analysis. Risk management should be addressed in the PEP or included by reference. The preliminary or PEP should summarize the key project risks. Key risks or "critical risks" are those estimated to have the most impact on cost and schedule and could include project, technical, internal, external, and other sub-categories.

***Example**: A detailed Risk Management Plan that describes the project's risk identification and management approach and associated risk register have been developed. The identified risks will be monitored, assessed, and dispositioned during the project. The major risks currently identified and the risk management approaches are identified below.*

Technical Risk—The high quality and purity of material needed as well as tight tolerances for the components are a major risk to the project. The project is performing R&D and

evaluating various, less stringent requirement to determine the technical impact to the project. The project is also planning to establish an Advisory Committee and frequent independent technical reviews to minimize technical risks. The project has included cost and schedule contingency in case these risks are realized.

Project Funding—Risks associated with continuing resolutions (CRs) and receipt of funds not as planned. Mitigating approach includes assuming three months of CR in the schedule, planning to award contracts in third quarter of fiscal years, and utilizing contracting methods with lower initial funding authorization. These contracting methods allow the work to begin prior to receipt of full funds but will require attention from technical and contracting staff.

Procurement Risks—The availability of limited manufacturers of high-field magnet capability will be a factor. These procurement risks have been mitigated through rigorous procurement processes including a competitive bid process, extremely detailed and flexible specifications and a request for information.

ES&H—It is highly likely that public stakeholder will oppose this project and will delay the NEPA process. The project is developing outreach programs to inform and communicate with concerned citizens as well as establishing a team of litigators to address the issues.

8.2 Project Reporting and Communication Management Plan

Briefly describe the reporting and communication process for stakeholders and interested parties. Also, include both internal and external requirements and as appropriate, types, content, distributions, frequency of reporting, level of control, and review and approval requirements.

Note: If the project TPC (at the high end if prior to CD-2) is larger than $10M, the project is to be included in PARS II and both the FPD and HQ Program Manager need to provide monthly status. If the TPC is $20M or more, monthly EV data is to be included in PARS II after CD-2 is approved.

***Example**: The project will report in DOE PARS II. In addition, the xxx Lab will provide to the FPD a monthly project progress report consistent with requirements in the EVMS description document. The HQ Program Manager will organize quarterly project performance meetings with the project personnel, the Acquisition Executive, and the Office of Project Assessment (SC-28).*

The project will also schedule IPT calls at least bi-weekly prior to CD-2 and weekly during the execution phase. Other organizations or personnel who may also participate in these calls include the AE, HQ personnel, OPA, and others as necessary. The purpose of these calls is to provide updates on the project progress and to discuss and resolve issues.

8.3 Earned Value Management System

Describe how earned value management will be implemented. Refer to/include the project's earned value management system description or plan.

***Example**: The xxx Laboratory has a certified EVMS that complies with the ANSI/EIA-748 Standard. The project EVMS that will be implemented prior to CD-2 approval will be consistent with the site EVMS description document and will provide an objective measure of actual costs and schedule performance against the Performance Measurement Baseline. An independent certification of this system against ANSI/EIA-748 will be performed by OPA prior to CD-3 approval. Surveillance and maintenance will be performed by the site annually and bi-annually by OPA.*

8.4 Project Reviews

Include a description of major reviews that would occur during the project and the results of those reviews. Refer to the project review plan.

***Example**: Independent Project Reviews of the project status and management will be conducted by Office of Science, Office of Project Assessment prior to each CD, and at a minimum annually after CD-2.*

The project is also responsible for performing Conceptual, Preliminary, and Final Design reviews by a team external to the project. Additional external and independent technical reviews, as applicable may be performed.

8.5 Engineering and Technology Readiness

Briefly describe readiness of the project and plans to manage and control engineering and technology development and deployment. If a technology readiness assessment has been completed or a technology maturation plan has been developed, these should be summarized.

***Example**: The project will assess engineering and technology readiness through design reviews, IPRs, and other independent technical reviews (see Project Reviews).*

8.6 Alternatives Analysis and Selection

Briefly summarize the alternative analyses and selections associated with accomplishing the mission and associated key parameters.

***Example**: An alternatives analysis was performed as part of the Acquisition Strategy development process. The alternative selected is to construct and upgrade xxx at the xxx facility. Refer to the Acquisition Strategy or the xxx document for the alternative analysis and selection details.*

8.7 Environment, Safety and Health

Discuss the project's approach to ES&H including National Environmental Policy Act (NEPA), Integrated Safety Management (ISM), Industrial Safety and Occupational Health, Hazard Analysis, sustainability and LEED goals, and other applicable requirements. Provide a reference

or identify all documents that establish the ES&H plan for the project or establish requirements for the site as a whole. The ES&H section should include the following:

- A brief assessment of environmental permitting,
- The status of and plans for NEPA compliance,
- A description of all safety documentation, such as the site ISM System and/or a project-specific safety management plan, and
- A description of environmental management documentation, such as the site's Environmental Management System and/or project-specific waste management or pollution prevention plans.

***Example**: A sitewide Environmental Management System to develop, implement, achieve, and maintain a successful Environmental, Safety, and Health policy is in place. A project has assigned an ES&H manage for the project to ensure that the project comply with all applicable ES&H requirements.*

The project will ensure that waste minimization and pollution prevention receives high priority throughout the duration of the project. All waste will be managed properly and in compliance with applicable environmental requirements and regulations.

The xxx site (or project) EIS, EA or FONSI addresses the potential environmental impacts of the Proposed Action. The recommendation from the NEPA Compliance Officer is categorical exclusion…. xxx person approved the NEPA and xxx document. These approvals constitute completion of all environmental requirements.

The project is not required to comply with sustainability and LEED goals since the project is an MIE, accelerator, or…

A safety assessment was performed by the site's xxx group and was determined that the work to be conducted for the project site will be covered under the laboratory's existing ISM Program. It was also determined that no additional ISM policies or procedures needs to be developed. A Preliminary Hazard Analysis Report has been prepared for the project. The report finds that all hazards identified are similar in nature and magnitude to those already found in other types of xxx projects. The impact of any hazard will be minor onsite and negligible off-site. The Hazard Analysis will be updated as the project matures.

8.8 Safeguards and Security

Safeguards and security systems, processes, procedures, and personnel should be identified and/ or developed to establish a framework that will systematically integrate safeguards and security management into the project acquisition process. Refer to/include the project's safeguards and security plan or Security Vulnerability Assessment Report (SVAR).

***Example**: A security and vulnerability risk review was performed and the conclusion was that the safeguards and security issues for this project are considered small and manageable with standard practices. The project does not require a SVAR or additional security*

requirements that are not already addressed by current xxx Laboratory policies and procedures. The project will use the existing xxx lab program and policy that is already approved by DOE.

Refer to the following documents for more details:
xxx Document
xxx Document 2
Etc.

8.9 Systems Engineering

The primary goal of systems engineering is to transform mission requirements into system architecture, performance parameters, and design details, beginning with the definition of a need and progressing through the establishment of the baseline and ending with verification that the need has been met. Refer to/include the project's systems engineering plan and documentation.

***Example**: The project will use a systems engineering approach to execute and manage the project including performing value management analysis and value engineering studies; specification and design development, verification, and reviews; risk analysis and management; and coordination of fabrication and installation of equipment and systems, and other interface management activities. A system engineer, from the Engineering Support will be assigned to the project to ensure full integration of all work.*

8.10 Value Management

Value management should be performed early in a project life-cycle and referenced or documented in the PEP.

***Example**: (of language at CD-1) The project will perform a value management assessment as part of the conceptual design process to include making a determination of whether a formal value engineering study is required. If value engineering is determined to be required, a VE study will be performed.*

***Example**: (of language at CD-2) A VM analysis was performed prior to CD-2. For more information on the VE study, refer to document xxx.*

Or…

The project performed a value management assessment as part of the conceptual design process. A value management assessment determined that a VE study is not necessary, since this project already incorporated VE recommendations and lessons learned from a similar project that was recently completed.

8.11 Value Engineering

Refer to DOE P 413.2, *Value Engineering*, dated 1-7-04, DOE O 430.1B, *Real Property Asset Management*, dated 9-24-03, and Office of Management and Budget Circular A-131, *Value Engineering*.

***Example**: Value Engineering (VE) studies were conducted throughout the preliminary design phase of the project, and will continue during the final design and construction phases of the project.*

Refer to Document xxx—site policy on VE for more detail on the VE approach used and Document xxx—the value engineering report.

8.12 Configuration Management/Document Control

Configuration management is used to identify and document the configuration of the end products and control changes to the configuration during the life cycle. The FPD should initiate a configuration management system early in the development of the project and ensure the delivery of complete as-built documents at the close of the project. Refer to/include the project's Configuration management plan.

***Example**: Configuration of the project baseline documents will be maintained using the formal change control process described in xxx document. These documents listed below are controlled.*

- *Project Data Sheet,*
- *Project Execution Plan,*
- *Requirements Document,*
- *Design Documents,*
- *Approved Baseline Change Proposals.*

8.13 Quality Assurance and Testing and Evaluation

Describe the quality assurance requirements for the project. Depending on the project size and complexity, a project's Quality Assurance Program may be based on a corporate quality assurance plan or a project-specific plan. Also, refer to regulatory and contract requirements for the QA Program and DOE O 414.1C, Quality Assurance, dated 6-17-05.

Limited test and evaluation activities can be incorporated into the PEP. Where the test and evaluation effort is significant, a dedicated plan is recommended.

***Example**: Quality Assurance is an integral part of effective project management and will be employed throughout the design, procurement, and construction of the project. The project has a documented Quality Management Program (QMP) addressing the DOE adopted QA Criteria. In addition, national codes and standards will be followed throughout as applicable. For essential components, the quality requirement will be required for purchased, construction, lab fabrication, or for all sub-contractors performing work for the project. Refer*

to the design and procurement documents for specific QA, testing and evaluation, and acceptance requirements.

The resource-loaded schedule includes major QA and Testing and Evaluation activities as well as the durations and responsible resources.

8.14 Transition to Operations

Project transition to operations begins during design and continues until the new facility is completely operational and commissioned. Refer to/include the project's transition/closeout plan.

***Example**: Transition to Operations or "Commissioning" will be accomplished in phases and is expected to start approximately xxx months prior to CD-4. Also, a Transition to Operations Plan will be developed in support of CD-4A. All transition to operations activities (personnel transition or changes, operations and maintenance manuals development, training requirements, and other activities) have been identified, resourced, assigned, and are included in the resource-loaded schedule.*

A Start-Up Test Plan, consistent with this stage of the design maturity, addressing the check-out and commissioning plans has been developed. The Start-Up Test Plan supports the development of the Checkout, Testing, and Commissioning Plan.

8.15 Project Closeout

Project closeout is initiated once the construction has been completed and the project facilities are fully operational and commissioned. Refer to/include the project's closeout plan.

***Example**: When the project nears completion, a project close-out plan will be developed and implemented. The following activities will be discussed in the close-out plan:*

- *Project lessons learned.*
- *How all contract obligations, products, services, and deliverables have been completed and accepted by the client.*
- *How excess equipment and associated components will be properly dispositioned.*
- *How project team members will be informed that the work is complete and that they are no longer authorized to charge to project charge codes.*
- *How subcontractors/vendors are notified of the close out, and how a formal request is submitted to XXX Business Support Services to de-obligate balances and/or accrue outstanding costs and resolve/de-obligate outstanding balances. De-obligation and contract close out requires formal concurrence of vendors.*
- *How costs associated with closed charge codes must be cleared.*

A Draft Project Closeout Report will be developed prior to CD-4 approval and the Initial Project Closeout Report will be developed after the project is complete. The completion report will contain the final cost of the project, project lessons learned, and performance

achieved at project completion. The initial Project Closeout Report will be submitted 90 days after CD-4 is achieved.

As part of project closeout, the project will establish/update the Facilities Information Management System, document the achievement of the Facility Sustainability goals, and finalize PARS II reporting.

Note: Prior to CD-4 IPR, the project needs to develop a Draft Project Closeout Report—at this stage, Draft Project Closeout Report is mainly the table of contents of the document and any information on completed systems.

After CD-4, the Initial Project Closeout Report will be developed and submitted to HQ Program Manager within 90 days of CD-4 approval. The Initial Project Closeout Report will typically contain project lessons learned, project technical performance achieved, expected final cost of project, any financial claims that are not closed, the contingency amount remaining, and when the project is expected to complete the financial closeout and Final Project Closeout Report.

The Office of Project Assessment will provide a guidance on contents of the Project Closeout Report.

APPENDICES

IPT Charter
Detailed WBS (for large projects)
References